

## REMARKS

### STATUS OF THE CLAIMS

Claims 1-55 are pending. Claims 14-26 and 40-55 have been withdrawn as directed to non-elected species. Claims 1-11, 27, 29-32, and 34-39 are rejected under 35 USC 102(b) as allegedly anticipated by US Patent No. 6,185,081 issued to Simion *et al.* ("*Simion*"). Claims 1-5, 9-10, 27, and 29-34 are rejected under 35 USC 102(b) as allegedly anticipated by US Patent No. 6,353,318 issued to Sin *et al.* ("*Sin*"). Claims 1-2 and 11-13 are rejected under 35 USC 102(b) as allegedly anticipated by US Patent No. 5,434,826 issued to Ravipati *et al.* ("*Ravipati*"). Claims 1-2 and 11-13 are rejected under 35 USC 102(e) as being allegedly anticipated by U.S. Patent Application Publication No. 2003/0030947 filed by Ooshima *et al.* ("*Ooshima*"). Claim 28 is rejected under 35 USC 103(a) as allegedly being obvious over *Simion*. Applicants respectfully traverse these rejections.

### OBJECTIONS TO THE SPECIFICATION AND CLAIMS:

The Examiner objects to the specification and drawings on the grounds that the GMR sensor is inaccurately described and depicted, in that there is no spacer layer shown between the free layer and the pinning layer, which is well-known to be required for a GMR sensor to function properly. Applicants concur that a spacer layer in this location is a well-known feature of a GMR sensor, which was inadvertently omitted from the description, and Applicants agree with the Examiner that referring to the nonmagnetic coupling layer between the pinned and pinning layers of the synthetic antiferromagnetic pinning structure as a "spacer layer" could be misleading. Accordingly, Applicants have amended to the description in paragraph [0024] to make clear that a spacer layer (now 26) lies between the free layer 28 and pinned layer (now 25) and that the pinned layer (now 25) and pinning layer 24 are separated by a *different* nonmagnetic (spacer) layer (not shown). While the GMR structure is sufficiently well-known that the particular layer structure is likely to be understood to include the layers

mentioned, Applicants believe that the amended description will be clearer and that this amendment therefore addresses the ambiguity the Examiner noted.

In addition to these objections, the Examiner objected to the drawings for not using a reference numeral in the specification (“dusting layer 60”). The specification has been amended to use the reference numerals 60a and 60b that appear in the drawings in place of “60.” The Examiner also pointed out some typographical errors in the specification and Claim 34 and objected to Claims 30 and 31 for not limiting the base claim in the case where a material other than the one further specified in Claims 30 and 31 was selected in the base claim 29. Applicants have amended the specification and claims to address these objections.

Applicants respectfully submit that all objections to the specification, drawings, and claims have been adequately addressed. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objections.

#### CLAIM REJECTIONS:

Independent Claim 1, as amended, recites “at least one dusting layer directly below at least one of the underlayer or the bias layer and between the bias layer and the magnetoresistive sensor stack, the dusting layer comprising discontinuous, nano-sized islands.” This amendment is fully supported by the specification as originally filed (e.g., at Figs. 1A-1C, 2C-2F, 3A and 3B [submicron features], paragraphs [0027]-[0029]). Applicants respectfully submit that the recited dusting layer is not described expressly or inherently in any of the cited references. The layers alleged to show the recited “dusting layer” in *Simion* and *Ooshima* do not lie between the bias layer and a sensor stack (see, e.g., layer 35 in Fig. 5 of *Simion* and layer 23 in Fig. 20 of *Ooshima*). Moreover, none of the cited references disclose a dusting layer with discontinuous, nano-sized islands. The structures alleged by the Examiner to show “islands” (the halves of respective layers left and right of the sensor stack (layer 35 in Fig. 5 of *Simion* and layer 130 in Fig. 2 of *Sin*) are clearly not “nano-sized” (i.e., of submicron width), leaving aside the question of whether one skilled in the art would reasonably construe the term “islands” as broadly as the Examiner has construed it. Thus, none of the cited

references, whether taken separately or in combination with one another, can show each and every element of independent Claim 1. Applicants respectfully submit that Claim 1 and its dependent claims are allowable for at least this reason, and Applicants respectfully request reconsideration and allowance of Claims 1-13 and 27-39.

Moreover, if Claim 1 is held allowable, Applicants respectfully request consideration and allowance of non-elected claims that include all of the limitations of Claim 1.

### CONCLUSION

In view of the foregoing amendments and/or remarks, Applicants request consideration and allowance of all elected claims, and if any generic claim is held allowable, such non-elected claims as include the limitations of such allowable claim. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to contact the undersigned attorney at the number listed below.

The Commissioner is hereby authorized to charge payment of any other required fees associated with this Communication or credit any overpayment to Deposit Account No. 23-1055.

Respectfully submitted,

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By: /Jonathan E. Prejean/  
Jonathan E. Prejean, Esq.  
Reg. No. 52,132

WESTERN DIGITAL TECHNOLOGIES, INC.  
20511 Lake Forest Drive  
Lake Forest, CA 92630  
Tel.: (949) 672-7000  
Fax: (949) 672-6604